

AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1-29. (Canceled)

30. (New) A system for gauging alignment of a vehicle, comprising:

means for mounting at least one linear dimension measuring device to the vehicle in such manner that the measuring device is locatable at a position along the vehicle at which a linear dimension measurement taken by the linear dimension measuring device while the measuring device is located at the first position will be measured relative to a first datum point on the vehicle, whereby operation of said measuring device to measure a distance to an other datum point spaced apart from said first datum point while said measuring device is located at the first position yielding a linear dimension between the first datum point and the other datum point;

output signal generation means for generating an output signal corresponding to the linear dimension indicated by the operation of the measuring device;

storage means for storing reference data is stored corresponding to standard reference dimensions for a selected vehicle;

comparator means for comparing the output signal with a selected reference dimension from the storage and for generating an error signal indicative of the variation therebetween; and

variation display means for providing a visual indication of a magnitude of the variation to thereby provide a quantitative indication of structural misalignment.

31. (New) A system according to claim 30, wherein:
said measuring means include an extendable measuring tape; and
the output signal is indicative of one of an operative and extended length of the tape.

32. (New) A system according to claim 31, wherein said measuring tape comprises a flexible steel blade calibrated with visual indicia and which is extendable by unwinding from a spool contained within a housing.

33. (New) A system according to claim 32, further including bias means for applying a biasing force tending resiliently to retract the tape by rewinding onto the spool.

34. (New) A system according claim 31, wherein the output signal generation means include a position transducer which generates the output signal in a form of one of an electric current and a voltage indicative of said one of the operative and extended length of the measuring tape.

35. (New) A system according to claim 34, wherein the position transducer is a rotary potentiometer coupled with the tape spool.

36. (New) A system according to any one of claim 34, wherein the position transducer is a linear potentiometer linked with the tape blade.

37. (New) A system according to claim 31, further including output signal display means for displaying a visual indication of said one of the operative and extended length of the measuring tape according to the output signal, thereby to permit visual correlation between the indicia on the measuring tape and the output signal.

38. (New) A system according to claim 30, wherein said at least one linear dimension measurement device includes a pair of said measuring devices, one of said measuring devices of the pair being disposed for measurement in

horizontal planes and an other of the pair being adapted for measurement in vertical planes.

39. (New) A system according to claim 38, wherein said pair of measuring devices are supported in mutually orthogonal relationship within a common housing, forming part of an integrated measurement module.

40. (New) A system according to claim 37, wherein the output signal display means associated with each of said measuring tape are disposed one of on and adjacent said housing.

41. (New) A system according to claim 30, wherein said storage means are part of a computer.

42. (New) A system according to claim 30, wherein said storage means include at least one of a CD ROM, a floppy disk, an internal hard disk, a magnetic tape drive, random access memory (RAM) and read only memory (ROM).

43. (New) A system according to claim 42, wherein said reference data is initially provided in CD ROM form for downloading onto a disk drive associated with the computer.

44. (New) A system according to claim 41, wherein the comparator means take the form of software configured to perform a sequence of operations using the reference data and the output signal in order to generate the error signal.

45. (New) A system according to claim 44, wherein the software is configured to enable an operator to select a reference dimension from a range of standard reference dimensions for the vehicle from the storage means.

46. (New) A system according to claim 32, wherein the variation display means are disposed one of on and adjacent the housing to provide direct feedback of the error signal to the operator while working on the vehicle.

47. (New) A system according to claim 30, further comprising recording means for recording the error signal in relation to the corresponding reference dimension in response to a command input by an operator, thereby to provide a record of the extent of structural deviation from specification after repair work has been carried out.

48. (New) A system according to claim 47, wherein the recording means include printing means for producing a hard copy of a report after repair operations have been carried out, to confirm that deviations from specification are within acceptable tolerances.

49. (New) A system according to claim 32, further comprising a remotely operable scrolling mechanism, located one of on and adjacent the housing, for permitting an operator to scroll through a range of selected reference dimensions and to view on the variation display means a corresponding sequence of calculated variation measurements derived from the error signals while working on the vehicle.

50. (New) A system according to claim 30, further comprising:
a datum bar;
a pair of first carriage assemblies slidably mounted to the datum bar;
attachment means for releasably securing each of said first carriage assemblies to a respective datum point on the vehicle and thereby to suspend the datum bar in a transverse orientation beneath the vehicle; and
a trammel bar connected at one end to said datum bar by connection means, the connection means being adjustable to selected positions along the

datum bar and permitting a degree of universal movement of the trammel bar relative to the datum bar.

51. (New) A system according to claim 50, wherein the measuring means are mountable on the trammel bar to provide measurement readings relative to the datum bar.

52. (New) A system according to claim 51, wherein the connection means include a trammel carriage adapted to traverse the datum bar and a universal joint mounted to the trammel carriage, to permit independent relative rotation about non-parallel axes.

53. (New) A system according to claim 38, wherein said housing further includes a slidable reference pointer connectable with the vertically oriented measuring tape for engagement with selected datum points on the vehicle such that with the trammel bar in a generally horizontal orientation, the vertical tape provides a measure indicative of the vertical distance between the datum bar and the reference pointer, and the horizontal tape provides a measure of the horizontal distance between the datum bar and the reference pointer.

54. (New) A system according to claim 50, further comprising adjustable leveling means to indicate when the trammel bar is oriented horizontally relative to the vehicle.

55. (New) A system according to claim 54, wherein the leveling means include a detachable spirit level.

56. (New) A system according to claim 30, further comprising at least one attachment mechanism for releasably securing at least a portion of said dimension measuring means to a vehicle being measured.

57. (New) A system for gauging alignment of a vehicle, comprising:
at least one linear dimension measuring device mountably received to the vehicle in such manner that the measuring device is locatable at a position along the vehicle at which a linear dimension measurement taken by the linear dimension measuring device while the measuring device is located and mounted at the first position will be measured relative to a first datum point on the vehicle, whereby operation of said measuring device to measure a distance to an other datum point spaced apart from said first datum point while said measuring device is located at the first position yielding a linear dimension between the first datum point and the other datum point;

a signal generator for generating an output signal corresponding to the linear dimension indicated by the operation of the measuring device;

storage in which reference data is stored corresponding to standard reference dimensions for a selected vehicle;

a comparator which compares the output signal with a selected reference dimension from the storage and which generates an error signal indicative of the variation therebetween; and

a display on which a visual indication of a magnitude of the variation is displayed to thereby provide a quantitative indication of structural misalignment..

58. (New) A system according to claim 57, further comprising mounting structure for retaining the measuring device to the vehicle, said mounting structure including:

a first elongated member mountable in fixed engagement with the vehicle; and

a second elongated member slidably mounted proximate a terminal end thereof to the first elongated member to allow said second elongated member to slide along the first elongated member between a first position and a second position corresponding to a first datum point and a second datum point.

59. (New) A system according to claim 58, wherein said second elongated member is pivotable relative to the first elongated member along a vertical axis, thereby allowing the second member to move along a horizontal arc.

60. (New) A system according to claim 59, wherein said second elongated member is pivotable relative to the first elongated member along a horizontal axis thereby allowing the second elongated member to be leveled by movement along a vertical arc.

61. (New) A system according to claim 60, wherein said at least one linear dimension measuring device includes a pair of measuring devices, one of said measuring devices of the pair being disposed for measurement in horizontal planes and an other of the pair being adapted for measurement in vertical planes, said pair of measuring devices being carried on said second elongated member and slidable therealong.

62. (New) A method of gauging vehicle alignment, comprising:
mounting a linear dimension measuring device to the vehicle such that the measuring device is locatable at a position along the vehicle at which a horizontal linear dimension measurement taken by the linear dimension measuring device

while located at said position will be measured relative to a datum point on the vehicle corresponding thereto;

measuring a linear dimension between the first datum point and at least another datum point spaced apart from said first datum point by operating the measuring device while said measuring device is located at the first position;

generating an output signal corresponding to the linear dimension indicated by the measuring device;

storing reference data corresponding to standard reference dimensions for a selected vehicle;

comparing the output signal with a selected reference dimension stored in said step of storing and generating an error signal indicative of the variation therebetween; and

providing a visual indication of a magnitude of the variation to thereby provide a quantitative indication of structural misalignment..

63. (New) A method according to claim 62, wherein:

said step of mounting including mounting in a manner allowing the linear dimension measuring device to be moved between said position and a second position along the vehicle, linear dimension measurements taken by the linear dimension measuring device while located at said position and said second

position being measured relative to said datum point and a second datum point on the vehicle, the method further comprising the steps of:

alternately locating said measuring device at said position and said second position; and

measuring respective linear dimensions between said datum point and a datum point spaced apart from said datum point by operating the measuring device while said measuring device is located at said position, and between the second datum point and at least one datum point spaced apart from said second datum point by operating the measuring device while said measuring device is located at the second position.

64. (New) A method according to claim 62, further comprising:

mounting an other linear dimension measuring device to the vehicle in a manner in which said measuring device is locatable below said datum point, and orienting said measuring device for taking of a vertical measurement thereby;

vertically locating said other measuring device at a known vertical dimension from a given one of said at least another datum point; and

measuring another vertical dimension from said other measuring device to said datum point to determine a difference in height between said datum point and said given one of said at least another datum point.

65. (New) A method of gauging vehicle alignment, comprising:

mounting a linear dimension measuring device to the vehicle in a manner allowing the measuring device to be moved between first and second positions along the vehicle at which subsequent linear dimension measurements taken by the linear dimension measuring device while located at the first and second positions will be measured relative to first and second datum points on the vehicle, respectively;

alternately locating said measuring device at said first and second positions;

measuring respective linear dimensions between the first datum point and a datum point spaced apart from said first datum point by operating the measuring device while said measuring device is located at the first position, and between the second datum point and at least one datum point spaced apart from said second datum point by operating the measuring device while said measuring device is located at the second position;

generating an output signal corresponding to each of the linear dimensions indicated by the measuring device;

storing reference data corresponding to standard reference dimensions for a selected vehicle;

comparing the output signal with a selected reference dimension from the storage means and generating an error signal indicative of the variation therebetween; and

providing a visual indication of a magnitude of the variation to thereby provide, in use, a quantitative indication of structural misalignment.